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(58) **Field of Classification Search**

CPC combination set(s) only.

See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

5,847,698 A 12/1998 Reavey et al.  
6,510,048 B2 \* 1/2003 Rubenson et al. .... 361/679.09  
6,628,244 B1 9/2003 Hirose et al.  
6,793,251 B2 9/2004 Stark

(Continued)

**FOREIGN PATENT DOCUMENTS**

CN 101408781 4/2009  
CN 202548700 11/2012

(Continued)

**OTHER PUBLICATIONS**

Taiwanese Patent Application No. 101103152—Office Action dated Jun. 4, 2014.

(Continued)

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(57) **ABSTRACT**

A magnetic attachment mechanism and method is described. The magnetic attachment mechanism can be used to releasably attach at least two objects together in a preferred configuration without fasteners and without external intervention. The magnetic attachment mechanism can be used to releasably attach an accessory device to an electronic device. The accessory device can be used to augment the functionality of usefulness of the electronic device.

**16 Claims, 43 Drawing Sheets**

